

7. The electronic interactive device of claim 3, wherein said flexible screen is a rollable display, a foldable display, or a bendable electronic paper.

8. The electronic interactive device of claim 1, wherein said actuator is a flexible actuator.

9. The electronic interactive device of claim 8, wherein said flexible actuator is a strip of piezoceramic, Shape Memory Alloy, or electroactive polymers

10. The electronic interactive device of claim 8, wherein said flexible actuator is situated between said flexible screen and said flexible touch sensitive surface, whereby said flexible screen, said flexible touch sensitive surface, and said flexible actuator are capable of rolling, folding, or bending at a substantially the same degree.

11. A method of providing haptic feedback for an input and output device, comprising:

monitoring a plurality of regions on a first surface of a flexible touch sensitive surface, wherein a second surface of said flexible touch sensitive surface is deposited over a flexible display;

sensing a contact on one of said plurality of regions if said flexible touch sensitive surface;

generating an input signal in response to said contact and sending said input signal to a processing unit; and  
generating haptic feedback in response to said input signal.

12. The method of claim 11, wherein said generating haptic feedback in response to said input signal further includes:

generating a partial imaging signal when said flexible display is in a flexible position;

initiating a haptic signal in response to said input signal and said partial imaging signal; and

providing said haptic signal to an actuator.

13. The method of claim 11, wherein said monitoring a plurality of regions on a first surface of a flexible touch sensitive surface further includes:

identifying an effective displaying window of said flexible display if said flexible display is in a rolled-up position; and

activating a set of regions of said flexible touch sensitive surface to create an effective touch sensitive surface in response to said effective displaying window.

14. The method of claim 11, wherein said monitoring a plurality of regions on a first surface of a flexible touch sensitive surface further includes:

identifying an effective displaying window of said flexible display if said flexible display is in a folding position; and

activating a set of regions of said flexible touch sensitive surface to create an effective touch sensitive surface in response to said effective displaying window.

15. The method of claim 12, wherein said generating a partial imaging signal when said flexible display is in a flexible position further includes determining said flexible display is in a bending position.

16. The method of claim 12, wherein said generating a partial imaging signal when said flexible display is in a flexible position further includes determining said flexible display is in a rolled-up position.

17. The method of claim 12, wherein said generating a partial imaging signal when said flexible display is in a flexible position further includes determining said flexible display is in a folding position.

18. The method of claim 11, wherein said generating haptic feedback further includes activating at least one fiber of shape memory alloy to create a haptic sensation.

19. The method of claim 11, wherein said generating haptic feedback further includes activating at least one fiber of electroactive polymers to create a haptic sensation.

20. The method of claim 11, wherein said generating haptic feedback further includes activating at least one strip made of piezoelectric materials to create a haptic sensation.

21. A handheld device having a flexible screen, comprising:

a flexible touch sensitive surface capable of receiving an input;

a flexible screen coupled to said flexible touch sensitive surface and configured to display an image in response to said input;

a first handle coupled to first end of said flexible screen and a second handle coupled to second end of said flexible screen, wherein when said first handle and said second handle are in closed position, said flexible screen is in a rolled-up position, and when first handle and second handle are in open position, said flexible screen is in a displaying position; and

an actuator coupled to said flexible screen and configured to provide haptic feedback in response to said input.

22. The handheld device of claim 21, wherein said flexible touch sensitive surface further includes at least a portion of said flexible touch sensitive surface is deposited over said first handle.

23. The handheld device of claim 22, wherein said flexible touch sensitive surface further includes at least a portion of said flexible touch sensitive surface is deposited over said second handle.

24. The handheld device of claim 23, wherein said flexible touch sensitive surface further includes at least a portion of said flexible touch sensitive surface is deposited over said flexible screen.

25. The handheld device of claim 21, wherein said actuator coupled to said flexible screen is a vibrotactile motor situated in said first handle.

26. The handheld device of claim 21, wherein said actuator coupled to said flexible screen is a vibrotactile motor situated in said second handle.

27. The handheld device of claim 21, wherein said actuator coupled to said flexible screen is a flexible actuator anchored to said flexible screen.

28. An apparatus for providing force feedback for an input and output device, comprising:

means for monitoring a plurality of regions on a first surface of a flexible touch sensitive surface, wherein said flexible touch sensitive surface is deposited over a flexible display;

means for detecting an input on a touched region of said plurality of regions;

means for generating an input signal associated to said touched region and sending said input signal to a processing unit; and

means for generating haptic feedback on said device in response to said input signal.